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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Joachim Bamberg

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EXAMINER

ELLIS, RYAN H

ART UNIT

PAPER NUMBER

3745

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,868	Applicant(s) BAMBERG ET AL.	
	Examiner RYAN H. ELLIS	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the micro-profiled area on the blade foot must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 8-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

4. Claims 8-14 are non enabling because one having ordinary skill in the art could not make or use the invention from the disclosure coupled with information known in the art without undue experimentation. The disclosure fails to provide details of the micro-structured or micro-profiled area (micro areas hereinafter) due to a lack of explanation of the structure of the micro areas or their construction. Applicant also attempts to provide some detail in the form of claiming the micro areas are “shark-skin like” but this fails to fully explain the details or construction of the micro areas. Additionally Applicant claims that the micro areas strengthen and induces compressive stresses but due to the lack of explanation it is not clear how the micro areas accomplish this objective. There are multiple ways to construct a micro area and the disclosure provides no concrete explanation as to how the micro structure is constructed and is therefore non enabling.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 8, 9, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,488,238 to Battisti.

Battisti teaches:

In Reference to Claim 8

A rotary vane of a compressor of a gas turbine comprising (col. 5, ll. 42-44): a vane foot (7); and a blade (1), the blade being delimited by a flow inlet edge or front edge, a flow outlet edge or rear edge, and a blade surface extending between the front edge and the rear edge and forming a suction side and a pressure side (Figure 2), the suction side of the blade has at least one micro-profiled or micro-structured area (porous elements 4a and 4b) for optimizing flow around the blade (claim 1).

In Reference to Claim 9

The rotary vane as recited in claim 8 (see rejection of claim 8 above) wherein the at least one micro-profiled or micro-structured area is assigned to a section of the suction side of the blade (Figure 2), flow deceleration taking place in the section. Battisti teaches a micro-structured area that increases boundary layer control and therefore meets the limitation of the claim.

In Reference to Claim 13

The rotary vane as recited in claim 8 (see rejection of claim 8 above) wherein the vane foot includes a side having a further micro-profiled or micro-structured area (Figure 2) structured so that the blade is strengthened in this

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area or that compressive stresses are induced. Battisti teaches a blade with a micro-profiled structure in the correct spot so it inherently strengthens and reduces compressive stresses.

In Reference to Claim 14

The rotary vane as recited in claim 8 (see rejection of claim 8 above) wherein the vane is an aircraft engine blade (col. 5, ll. 42-44).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,488,238 to Battisti.

In Reference to Claim 10

Battisti teaches:

The rotary vane as recited in claim 8 (see rejection of claim 8 above) wherein the at least one micro-profiled or micro-structured area is assigned to a section of the suction side of the blade (Figure 2).

Battisti fails to teach:

The section extending over between 30% and 70% of a profile depth of the blade. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the micro-profiled section extend between

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30% and 70% of the suction side of the blade, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In Reference to Claim 10

Battisti as modified teaches:

The rotary vane as recited in claim 10 (see rejection of claim 10 above) wherein the at least one micro-profiled or micro-structured area is assigned to a section of the suction side of the blade (Figure 2).

Battisti fails to teach:

The section extending over between 30% and 50% of a profile depth of the blade. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the micro-profiled section extend between 30% and 50% of the suction side of the blade, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,488,238 to Battisti in view of US Patent No. 6,729,846 to Wobben.

In Reference to Claim 12

Battisti teaches:

The rotary vane as recited in claim 8 (see rejection of claim 8 above).

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Battisti fails to teach:

At least one micro-profiled or micro-structured area has a shark skin-like profile or structure.

Wobben teaches:

At least one micro-profiled or micro-structured area has a shark skin-like profile or structure (col. 3, ll. 21-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the micro-structure of Battisti to construct it in the manner of shark skin as taught by Wobben because the configuration was known in the art and could have been implemented by one of ordinary skill with predictable results.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No. 6,666,646 to Van Ierland et al. teaches drag reducing treatments for turbine components. US Patent No. 5,069,403 to Marentic et al. discloses a drag reducing article to be used on flow control surfaces. US Patent No. 4,930,729 to Savill discloses a fluid flow control coating that can be mimic shark skin.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN H. ELLIS whose telephone number is (571)270-7414. The examiner can normally be reached on Monday-Friday; 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ED LOOK can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RYAN H. ELLIS/
Examiner, Art Unit 3745

/Edward K. Look/
Supervisory Patent Examiner, Art Unit 3745